CASING HAVING A NOZZLE AND A TANK ADAPTED TO CONTAIN A FLUID UNDER PRESSURE

Marcel Quercia, Paris, France, assignor to Flammeur Marcel Quercia, Paris, France, a society of France
Filed Apr. 3, 1962, Ser. No. 184,801
Claims priority, application France Apr. 5, 1961 6 Claims. (Cl. 222—3)

The present invention relates to devices comprising a tank, preferably a removable one, containing a fluid under pressure, the outlet of said tank, controlled by an outlet valve, being connected to a discharge orifice through a conduit, with pressure relief means advantageously provided in said conduit, upstream of this outlet valve.

The invention is more especially concerned with lighters, lamps, gas stoves, which comprise a gas conduit between the gas tank and the burner, and also with atomizers comprising a fluid conduit between the tank and the atomizing nozzle.

The object of this invention is to provide a device of this kind which is simpler and cheaper to manufacture.

The device according to this invention is essentially characterized in that the conduit extending downstream of the outlet valve consists at least partly of a groove provided in a wall of the device and covered by a strip of material impervious to gases and, in particular, a strip of adhesive tape.

Preferred embodiments of the present invention will be hereinafter described with reference to the accompanying drawings, given merely by way of example and in which:

FIG. 1 is an elevational view, with some parts in section, of a gas lighter made according to a first embodiment of the invention;

FIG. 2 is a side elevational view, with parts in section, of the same gas lighter;

FIG. 3 is a front elevational view, with parts in section, of a gas lighter made according to a second embodiment of the invention.

The gas lighter shown by the drawings comprises a removable tank 1, for gas under pressure, housed in a body forming a casing which consists of two halves 2, 2, surrounding tank 1, and carrying a lighting mechanism, for instance of the pyrophoric type. The casing half 2 is provided with a housing 3 adapted to accommodate tank 1, and it carries a burner 4 which must be connected with the gas outlet orifice provided in tank 1, downstream of an outlet valve (not shown) mounted in tank 1.

For instance, tank 1 is mounted in such manner as to be displaced toward the right in casing 2 and 2, (which displacement may be controlled from the outside by forming the central portion of casing half 2). The outlet valve is advantageously made as shown in the French Patent No. 1,233,611 for “Tank for Fluid Under Pressure, in Particular for a Gas Under Pressure, To Be Used in Gas Lighters,” the element 18 of the present drawings corresponding to the push rod 12 of FIG. 3 of this prior patent.

Thus, when tank 1 is moved toward the right, said push rod 18 comes into contact with a fixed piece carried by casing element 2 and opens, by means of the valve located in tank 1, the outlet orifice of said tank, which surrounds said push rod 18, and through which gas escapes to the outside of the tank, to be conveyed to burner 4.

Now, according to the present invention, at least a portion of the conduit forming a communication between burner 4 and a connecting element 5 into which opens said tank outlet orifice consists of a groove 6 formed in the external wall of casing element 2 and covered by a flexible strip or plate 7, impervious to gases and consisting for instance of a gas-proof adhesive tape.

According to an advantageous embodiment of the invention, groove 6 communicates with burner 4 and/or connecting element 5 through a hole which extends through the wall of casing element 2 and opens into a face thereof opposed to that where groove 6 is located, which permits of placing connecting member 5 and burner 4 at any place whatever on casing element 2 and to give them practically any desired direction.

When connecting member 5 consists of a bell-shaped sleeve of a flexible and resilient material such as rubber, this bell-shaped sleeve being applied in a gas-tight manner by its annular edge against the outer wall of tank 1, around the outlet orifice thereof, the closed end of this bell-shaped sleeve is advantageously secured against one of the faces of casing element 2, by a hollow rivet 8 which extends through said end of the bell-shaped sleeve and through the wall of the casing element 2, and opens into a recess 9 in communication with groove 6.

The groove may be made in casing 2 by milling or stamping.

However, it seems particularly advantageous to make casing element 2 by molding, which permits of obtaining, in a single operation, casing element 2 with its groove 6, its recess 9, and the hole adapted to receive rivet 8. Furthermore, molding should be conducted so as to permit in the bottom of groove 6, at the other end thereof, a blind hole 10 which communicates with a channel 11 provided in the mass of casing element 2 and opening into one of the side faces of this casing element at a place determined with respect to the igniting mechanism so that it can be used as a burner.

When casing element 2 is made of a plastic material and is obtained by molding, the burner proper advantageously consists of a metallic tube or nozzle 12 fixed in the end of channel 11.

In the construction of FIGS. 1 and 2, where groove 6 is formed in the outer face of casing element 2, it is advantageous to cover said face of the casing element with a stamped metallic sheet 13 which protects strip 7.

According to a modification, the groove through which gas circulates may be formed at 6a in the inner face of casing element 2a, as shown by FIG. 3. In this case, groove 6a and strip 7a are located on the inside of the lighter and thus protected against any external contact.

In order to secure bell-shaped sleeve 5 on the inner wall of recess 3a provided in casing element 2a, I provide by molding on said inner wall a projection 14 about which bell-shaped sleeve 5 is annularly mounted and said sleeve is fixed in position by a split ring 15 mounted with a force fit on projection 14.

In the construction of FIG. 3 groove 6a communicates with a groove 16 formed by molding along projection 14 and passing through sleeve 5 and ring 15.

When groove 6 is formed in the outer face of casing element 2, it is possible to provide, according to a modification not shown by the drawing, on the inner face of said casing element, a projection analogous to that shown at 14 on FIG. 3, but having formed therein, instead of groove 16, an axial hole communicating with groove 6.

The operation of a gas lighter as above described is as follows:

When the outlet valve of tank 1 is opened, gas flows out from said tank 1 into bell-shaped sleeve 5.

In the construction illustrated by FIGS. 1 and 2, gas escapes from bell-shaped sleeve 5 through the axial hole of rivet 8, passes into recess 9 and thence flows through groove 6, under strip 7, and through heat shield and 11 to burner 4, 12, at the outlet of which it may be ignited by the action of igniting means consisting for instance
of a flint wheel against which is applied a pyrophoric element, not shown.

In the construction of FIG. 3, gas flows from bell-shaped sleeve 5 to burner 4a, 12, by passing successively through grooves 16 and 6a and hole 18a.

According to other embodiments of the present invention the portion of the body of the lighter which is provided on one of its faces with a groove covered by a strip or a plate, to constitute a gas conduit, may have another form than that of a half casing element.

According to still another embodiment of the invention the plate which covers a groove formed in the surface of one of the portions of the body of a lighter, an atomizer, or the like, so as to form with this groove a conduit for a fluid under pressure, is made of a plastic material and is fixed to said part, for instance, by welding.

It will be understood that the invention makes it possible to manufacture pocket articles (lighters, atomizers, and so on) and travelling or camping articles (small gas stoves or lamp) of very low cost and easy to repair in case of the conduit being stopped.

What I claim is:

1. A device comprising a body, a tank for a fluid under pressure having an outlet orifice, said tank being carried by said body, means carried by said body forming a gas discharge nozzle, said body being provided in one wall thereof with a groove extending between said orifice and said nozzle and communicating at one end thereof with the latter, means extending between the other end of said groove and said outlet orifice for providing a gastight connection between the same, and a sheet of a material impervious to gases covering said groove and being gastightly connected along edges thereof to said wall to form with said groove a gas conduit.

2. A device comprising a casing, a tank for a gas under pressure having an outlet orifice, this tank being mounted in said casing, means forming a gas discharge orifice carried by said casing, one wall of said casing being provided with two holes extending each through said wall, said discharge nozzle being in communication with the inner end of one of said holes, means extending between said tank outlet orifice and the inner end of the other of said holes for providing a gastight connection between the latter and said outlet orifice, the outer face of said casing wall being provided with a groove extending from the outer end of said second mentioned hole to the outer end of said first mentioned hole, and a strip of a material impervious to gases extending over said groove and being gastightly connected along edges thereof to said wall to form with said groove a gas conduit.

3. A device comprising a casing, a tank for a gas under pressure having an outlet orifice, this tank being mounted in said casing, means forming a gas discharge orifice carried by said casing, the inner wall of said casing that is facing said tank outlet orifice being provided with a groove having one end located opposite said tank outlet orifice and the other end located in the vicinity of said means forming a gas discharge orifice, a strip of a material impervious to gases extending over said groove and being gastightly connected along edges thereof to said wall to form with said groove a gas conduit, and gas tight means for connecting said first mentioned groove end with said tank outlet orifice and said second mentioned groove end with said discharge orifice.

4. A device as set forth in claim 1, in which said sheet of material is formed by adhesive tape.

5. A device as set forth in claim 1, in which said body and said sheet are made from plastic material fused to each other.

6. A device as set forth in claim 2, and including a cover part connected to said casing and extending over said outer face of said casing wall.

References Cited in the file of this patent

UNITED STATES PATENTS
1,839,664 Christie May 24, 1932
2,418,036 Lane Mar. 25, 1947
1,233,613 France May 9, 1960

FOREIGN PATENTS